Operating Instructions

Thank you for buying pressure switches from BC-Systemtechnik, Dortmund. These operating instructions will help you use the switches safely and properly.
To ensure that the switches function smoothly and for your own safety, read these operating instructions carefully before starting installation work. If after reading these instructions you have any questions, you can contact BC-Systemtechnik at the following numbers:

Tel.: +49 (0)231 – 511396 info@bc-systemtechnik.de
Fax: +49 (0)231 – 510819 www.bc-systemtechnik.de

These operating instructions have been written for pressure switches:

Type BC-DS*B-***	Ⓔx I M2 Ex ia I Mb	**BVS 03 ATEX E 165**
Type BC-DS*C-***	Ⓔx II 2G Ex ia IIC T6 Gb	
Type BC-DS*B-***	Ex ia I Mb	**IECEx BVS 11.0056**
Type BC-DS*C-***	Ex ia IIC T6 Gb	

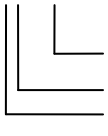
General requirements

- Failure to comply with these operating instructions and improper installation or maintenance can damage the pressure switches. In this case no warranty can be claimed for the products or any accessory and we are under no liability whatever.
- Always use the products within permitted specifications as indicated on nameplates and labels.
- Follow good engineering practice in the selection and use of the products.
- Note that pipelines or equipment of pressurized systems must not be opened.
- **Caution! Risk of injury; do not exceed prescribed pressure limits.**

If the products are used in **potentially explosive atmosphere**, they must comply with all construction and VDE requirements. This includes mandatory regulations and the instructions issued by equipment developers, builders and operator.

Type code

Pressure Switch BC- DS**-***



Pressure range in bar
Industry: Mining (B) or chemical industry (C)
Version: Pneumatic (P) or hydraulic (H)

Description
The compact pressure switch type BC-DS**-*** consists of a zinc die-cast housing and a knob for setting the switching point, which can be locked.
The pressure switch is designed for application in systems with self-lubricating fluids, e.g., hydraulic oil, lubricating oil, light fuel oil or pneumatic systems with oil-containing or oilfree compressed air; the pressure switch **must not be used with flammable media**.

The BC-DS pressure switch is a pressure controlled switch which monitors a preset value (pressure) by automatic opening or closing an intrinsically safe electric circuit. Depending on the application, switches for pneumatic and hydraulic systems with system pressures up to max. 20 bar or switches for hydraulic systems up to max. 350 bar system pressure are available.

For the exact replication of the actuation point and easy and sensitive setting, different pressure ranges are available for pneumatic and hydraulic equipment.

BC-DSPB/ BC DSHB and BC-DSPC / BC-DSHC in the versions 002; 008 and 016 can be used for oil-containing, oil free air, water or hydraulic fluids.

BC-DSHC / BC-DSHB in the versions 030; 080; 120; 160; 200; 250; 320 are suitable for self-lubricating fluids, hydraulic oil, lubricating oil.

Electrical characteristics
The electrical characteristics are defined in the certificate. The information is printed on the nameplate of the switch and must be complied with.

Max. switching voltage:	DC 30 V
Max. switching current:	2.5 V UC

Limit values
The pressure switches will operate reliably if the specified **limits for pressure** (depend on switch type) and temperature (-10 °C ≤ T_{amb} ≤ +60 °C) are observed and all instructions in the data sheet and the consignment note followed.

Switches used in a potentially hazardous atmosphere must comply with all applicable local requirements. A statement of conformity pursuant to EC directive 94/9/EC is supplied with the switch.

The statutory requirements of intrinsic safety must be observed.

The pressure switches must only be operated by a single intrinsically safe electric circuit.

Temperature
The ambient temperature must not exceed the range of -10 °C ≤ T_{amb} ≤ +60 °C.

Tools
Standard locksmith tools are needed for mounting the pressure switches.

Mounting/installation
Note that the pressure switch must never be used as a lever.
The switch can be mounted in any position. Make sure that the switch is mounted firmly and securely. Only trained technical personnel is authorized to fix the switch.

- It must be ensured that the pressure switch is only installed in a clean pipeline/equipment.
- Make sure that when you put the switch in place for mounting the flange O-ring is not damaged.
- Make sure that all lines and cable ends are inserted and connected to the terminal properly.
- To avoid short circuit and line break, do not kink cables.
- Avoid strong pulsation and pressure surges.
- The pressure switch and especially the setting knob must be protected from mechanical damage.
- Before starting the use of the switch, make sure that the equipment in which it is installed complies with all applicable regulations and requirements of the EMC directive.

The pressure switch must be installed by **trained technical personnel** observing the applicable **instructions**.

Remove the pressure switch in reverse order of installation. Make sure that no pressure builds up when the switch is removed. Disconnect the power supply to the switch and consult an authorized dealer.

Operation
- Permitted media include self-lubricating fluids, e.g., hydraulic oil, lubricating oil, light fuel oil or pneumatic systems with oil or oilfree compressed air which do not damage the system or the sealing materials it contains.
- Do not expose the switch to liquid or corrosive media outside.
- The operating pressure depends on the type of switch you use.
  The membrane versions of the pressure switches up to 20 bar can be used in pneumatic or hydraulic systems.
- Do not bend or twist the system.
- Avoid sharp bends of connecting cables and wires to avoid short circuit and line break.

Repairs (maintenance and troubleshooting)
The pressure switches require no maintenance. If necessary, inspect the connections, electrical specifications, working pressure and correct installation.

Settings:
The switching point is set in the factory to mid-scale ± 0.5 bar.
The switching point can be adjusted steplessly at the setting knob and locked at the required position with a hollow hexagon wrench.

Check settings with a pressure gauge.

Training:
If trained technical personnel is employed for installation of the switches, no training is needed because the switches are easy to use.

Special requirements:
The use of the pressure switches is not subject to any special requirements.

Nameplate:
The pressure switch has a **nameplate** attached at a conspicuous place at the switch. The nameplate is riveted or glued. The information on the nameplate is permanently legible and contains the following:

Manufacturer's name, address (post box) and trade name,
type designation as defined by BC-Systemtechnik (with year of manufacture),
the ex-atmosphere code ⟨Ex⟩ I M2 Ex ia IMb or ⟨Ex⟩ II 2G Ex ia IIC T6 Gb,
Ex ia IMb or Ex ia IIC T6 Gb,
the code of the type of protection,
the symbol of the group of explosion-hazard component,
the name and mark of the testing laboratory,
the number of the certificate,
ambient temperature data: $-10\ °C \leq T_{amb} \leq +60\ °C$
as well as pressure, voltage and current specifications.

Only the German version is legally valid